

Appl. No. 09/450,551
Amdt. dated July 18, 2005
Reply to Office Action of May 3, 2005

Remarks

The present amendment responds to the final Official Action dated May 3, 2005. The Official Action rejected claims 1-14 under 35 U.S.C. §103(a) based on Kayser et al. U.S. Patent No. 5,736,967 (Kayser) in view of common knowledge. Claims 1-14 were rejected under 35 U.S.C. §103(a) based on Goodwin, III U.S. Patent No. 5,828,315 (Goodwin) in view of common knowledge. These grounds of rejection are addressed below following a brief discussion of the present invention to provide context.

Claims 1, 2, 3, 6, and 11 have been amended to be more clear and distinct. In particular, claims 1, 6, and 11 have been amended to specify that the claimed electronic price label operates independently of an external power source and performs self diagnostic tests independent of a status request of an external controller. These amendments merely restate the existing limitations of the claim and are not intended to limit the scope in any way. Claims 15-20 have been added to cover certain aspects of the present invention. Claims 1-20 are presently pending.

The Present Invention

An electronic price label according to the present invention operates independently of an external power source and performs self-diagnosis for faults according to a predetermined schedule, and then, it reports detected faults through a visual display or audible tone.

Alternatively, these faults are communicated to a central reporting system. The price label includes a processor which controls normal operation for the label, and which also runs a diagnostic program on a predetermined schedule including periodic intervals. The processor,

Appl. No. 09/450,551
Amdt. dated July 18, 2005
Reply to Office Action of May 3, 2005

under control of the diagnostic program, exercises each component of the electronic price label and receives responses from the components. The processor then compares the responses received against fault signatures and reports as a failure any response matching a fault signature. The electronic price label performs self diagnosis, relieving the central reporting system from having to make status inquiries to the electronic price label and check the reported status against the expected status in order to determine whether or not the label is faulty. Such a relief reduces the communication bandwidth necessary to communicate with an electronic price label. Considering that electronic price label systems transmit at low power to many electronic price labels, communication bandwidth is at a premium.

In one aspect of the present invention, during normal operation, the price label periodically issues a "normal operation" signal. If the central reporting system fails to detect the "normal operation" signal during a predetermined time interval, the label is presumed to be faulty and an investigation is performed. In another aspect of the present invention, the price label transmits an indication to the central reporting system to report a fault.

The Art Rejections

As addressed in greater detail below, Kayser and Goodwin do not support the Official Action's reading of them and the rejections based thereupon should be reconsidered and withdrawn. Further, the Applicant does not acquiesce in the analysis of Kayser and Goodwin made by the Official Action and, in light of the present amendments, respectfully traverses the Official Action's analysis underlying its rejections.

Appl. No. 09/450,551
Amdt. dated July 18, 2005
Reply to Office Action of May 3, 2005

Claims 1-14 were rejected under 35 U.S.C. §103(a) based on Kayser. Kayser addresses a product information display system comprising a system controller, a number of area controllers having one or more wire loops, and display tags inductively communicating with the area controllers. Kayser, Fig. 2. Each wire loop is associated with a set of display tags. Kayser, col. 6, lines 35-37. Each display tag comprises a CPU and a pick-up coil or inductor located close enough to a wire loop to induce a corresponding current in order to provide power for operating the display tag. Kayser, col. 9, lines 10-22 and Figs. 6 and 7. This inductive approach is also used to convey information signals to the tags, eliminating the need for a battery in the display tag. Kayser, col. 9, lines 17-20. Once power is provided to a display tag from the wire loop, the CPU in the display tag performs a "power-on self-test involving memory and register checks." Kayser, col. 13, lines 45-47. Thus, this power-on self-test appears to be in response to the area controller applying power to a corresponding wire loop in order for a power-on self-test on a display tag to begin. In other words, without power being provided by the area controller, the display tag cannot perform a self-test.

In contrast to Kayser, the present invention addresses an electronic price label powered by a battery which advantageously allows the electronic price label to perform self-diagnostics and to report detected failures independent of an external controller regardless of whether the external controller is used to communicate a status query message or to supply power to an electronic price label. Such an approach allows a stockboy, for example, in a grocery store to peruse the shelves to visibly inspect whether any of the electronic price labels are failing without having to verify whether the entire electronic price label system is powered on and operating properly.

Appl. No. 09/450,551
Amdt. dated July 18, 2005
Reply to Office Action of May 3, 2005

Furthermore, by the electronic price label performing self diagnostics according to a predetermined schedule reduces the communication bandwidth required by communication base stations or external controllers requesting diagnostics to be performed. Claim 1, as presently amended, reads as follows:

1. An electronic price label operating independently of an external power source and wirelessly communicating information with a communication base station, the communication base station wirelessly transmitting a status request to the electronic price label to perform a status request dependent diagnostic test, the electronic price label comprising;

a battery for powering the electronic price label independent of an external controller;

memory for storing price information;

an interface for receiving the price information for storage;

a display for displaying the price information; and

a processor being powered by the battery and adapted to control operation of the memory, the interface and the display, the processor being operative to perform one or more independent diagnostic tests independent of the communication base station according to a predetermined schedule on one or more of the memory, the interface and the display, the processor being further operative to report a detected failure of one or more of the independent diagnostic tests.

Kayser does not teach and does not suggest an electronic price label which includes "a battery for powering the electronic price label independent of an external controller," as presently claimed in claim 1. Kayser specifically teaches an inductive power and communication scheme for powering and communicating with a display tag, thus teaching away from the electronic price label as presently claimed. Kayser does not teach and does not suggest performing "one or more independent diagnostic tests independent of the communication base station according to a predetermined schedule," as presently claimed. Kayser merely teaches a power-on self-test

Appl. No. 09/450,551
Amdt. dated July 18, 2005
Reply to Office Action of May 3, 2005

which appears to be performed at the time Kayser's display system powers up and the display tag first goes "on-line." Kayser, col. 13, lines 42-47. Thus, with Kayser's approach, unlike the present invention, it is possible for a display tag to subsequently fail after initially coming on-line without the display tag recognizing its own failure. See also claims 6 and 11.

The Official Action suggests that detecting a failure "independent of a status request would have been obvious to one of ordinary skill in the art." Applicant respectfully disagrees. Although a "status request" message is not disclosed explicitly in Kayser, the underlying inductive power and communication technique utilized in Kayser functions as a stimulus, like a status request message, for initiating a self-test. Since a display tag in Kayser is powered by an area controller and, thus, a corresponding wire loop, the self-test performed by the display tag is in response to an area controller applying power to the wire loop inextricably linking Kayser's power-on tests with the area controller. Consequently, Kayser does not disclose and does not make obvious "the processor being operative to perform one or more independent diagnostic tests independent of the communication base station," as presently claimed in claim 1.

The Official Action further suggests "the motivation for having provided such would have been to incorporate common knowledge independent analysis functions for the display disclosed by Kayser." Applicant respectfully disagrees. This conclusory statement is not a sufficient basis for establishing a prima facie case of obviousness. See MPEP Section 2143. If this rejection is maintained after the present response, applicant requests the Examiner to cite a reference or references which disclose a battery operated electronic price label which performs "diagnostic tests independent of the communication base station according to a predetermined

Appl. No. 09/450,551
Amdt. dated July 18, 2005
Reply to Office Action of May 3, 2005

schedule on one or more of the memory, the interface and the display, the processor being further operative to report a detected failure of one or more of the independent diagnostic tests," as presently claimed in claim 1. Moreover, even if the motivation, as the Examiner suggested, were true for arguments sake, Kayser's inductively powered display tag would still require a wire loop to be powered before a self-test could begin. Unlike Kayser, the present invention's battery operated self-diagnostic tests can be performed independent of the operation of an external computer. Such a claim feature allows a store clerk to inspect by viewing errors displayed on an electronic price label or by hearing a beep produced by an electronic price label.

Furthermore, claim 3 addresses a diagnostic test on the battery of the electronic price label. Kayser does not disclose and does not make obvious an electronic price label which performs diagnostic tests including "a test on the battery," as claimed by claim 3. In fact, Kayser's alternative approach to powering display tags specifically teaches changing the electromagnetic field on a wire loop associated with a set of display tags. Kayser, col. 9, lines 10-14.

Claims 1-14 were rejected under 35 U.S.C. §103(a) based on Goodwin in view of common knowledge. Goodwin advantageously addresses methods of assigning identification numbers to unassigned electronic price labels. Goodwin, Abstract. Goodwin also discloses communication base stations sending diagnostic messages to an electronic price label before and after the electronic price label becomes associated with a price look-up item. Goodwin, col. 2, lines 3-9 and 37-39. Thus, Goodwin, unlike the present invention, requires a communication base station to request diagnostics to be run on an electronic price label.

Appl. No. 09/450,551
Amdt. dated July 18, 2005
Reply to Office Action of May 3, 2005

The Official Action suggests that the current operating information instead of actually commanding the performance of an internal diagnostic test is disclosed by Goodwin. Applicant respectfully disagrees and believes this reading of Goodwin is technically incorrect. Referring to Goodwin at col. 2, lines 37-38 and col. 3, lines 6-9, communication base stations communicate messages including a diagnostic command to an electronic price label. Such a command originating from a communication base station becomes a precondition, unlike the present invention, for any diagnostics to be run on the electronic price label.

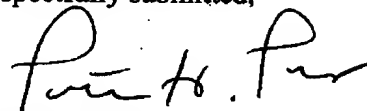
The relied upon references fail to recognize and address the problem of performing self-diagnostics independent of independent of a status request transmitted by a central processor and independent of an inductive power coupling caused by an external controller in the manner advantageously addressed by the present claims. The claims as presently amended are not taught, are not inherent, and are not obvious in light of the art relied upon.

Appl. No. 09/450,551
Amdt. dated July 18, 2005
Reply to Office Action of May 3, 2005

Conclusion

All of the presently pending claims, as amended, appearing to define over the applied references, withdrawal of the present rejection and prompt allowance are requested.

Respectfully submitted,



Peter H. Priest
Reg. No. 30,210
Priest & Goldstein, PLLC
5015 Southpark Drive, Suite 230
Durham, NC 27713-7736
(919) 806-1600